

REMARKS

Claims 1-48 are pending. Claims 13-15, 18-21, 25, and 26 have been indicated to be allowable and claims 37- 48 have been added to provide an additional measure of protection for the invention. Formal drawings have also been filed with this paper.

Reconsideration of the application is respectfully requested for the following reasons.

I. The § 103(a) Rejection based on Ichioka.

In the Office Action, claims 1, 2, 9-12, 16, 17, 22-24, and 27-36 were rejected under 35 USC § 103(a) for being obvious in view of the Ichioka patent. Applicant traverses this rejection for the following reasons.

The test for determining obviousness is set forth in MPEP § 2142. To satisfy this test, the cited references must teach or suggest all the features in claim 1. See also *In re Rouffet*, 47 USPQ.2d 1459 (Fed. Cir. 1997). Claim 1 recites “identifying a problem in a manufacturing process which caused the defect based on said defect classification.” As acknowledged by the Examiner on page 2 of the Office Action, the Ichioka patent does not disclose this identifying step. Therefore, as a matter of law the Ichioka patent cannot render claim 1 obvious.

Notwithstanding this omission, the Examiner took the position that it would have been obvious to one of ordinary skill in the art to modify the Ichioka patent to perform the identifying step of claim1, because “identifying a problem in manufacturing or elsewhere does not require the system of Ichioka to *change its function.*” By rejecting the claims on these grounds, the Examiner has essentially altered the test for obviousness as being one based on changed functionality, i.e., a

reference which omits a feature of a claimed invention will nevertheless render that invention obvious if it is *capable* of performing the omitted feature without having any of its other functions disturbed. This is not the proper test for determining obviousness under 35 USC § 103(a).

The question of whether or not an invention is *capable* of being modified to include one or more features of the claimed invention is immaterial to an obviousness inquiry. See MPEP § 2143.01, which states: “the mere fact that references can be . . . modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination.” In the present case, the Examiner has failed to cite a reference to demonstrate that it was known at the time the claimed invention was made to perform the step of classifying a defect and then “identifying a problem in a manufacturing process which caused the defect based on said defect classification.” Absent such a reference, the Examiner’s rejection cannot properly satisfy the requirements of establishing a *prima facie* case of obviousness under § 103(a).

Moreover, it appears that the Examiner’s “changed functionality” test derives from MPEP § 2143.01, which states that a combination of prior art references which changes the principle of operation of the primary reference or which otherwise renders the primary reference unsatisfactory for its intended purpose is improper. While this is true, this test is used to establish the impropriety of a combination of references, for purposes of establishing that a § 103(a) rejection has been issued in error. This is not the appropriate test for determining whether a § 103(a) rejection based on a single reference is proper. In the present case, no reference of record teaches or suggests the features of claim 1 which the Examiner acknowledged are missing from the Ichioka patent. Absent such a

reference, the MPEP states that requirements for establishing a *prima facie* case of obviousness cannot be satisfied.

Finally, it is noted that identifying the problem in a manufacturing process which caused a defect is an especially advantageous feature of the invention. This may be accomplished in several ways, one of which is based on the use of a rules- or knowledge-based system that links classifications of predefined defects with probable manufacturing problems. Another is based on the use of statistical information collected over a period of time and used for comparative purposes.¹ In fact, the specification states:

The Inventor has recognized that when a defect is detected and/or located during a manufacturing process of an electrical circuit, access to statistical information showing a distribution of one or more process problems that likely caused the defect would be highly desirable. *The present invention provides access to this information based on process problem data collected over time. Using this data, process problems can be monitored in different units of time (e.g., weekly or monthly) and corrective action may be taken to improve the accuracy and efficiency of the manufacturing process.* (Emphasis added)(Page 30).

The Ichioka patent does not teach or suggest identifying a problem in a manufacturing process that caused a circuit defect. On the contrary, once a defect is determined Ichioka endorses either discarding the circuit or taking some action to correct the defect. Ichioka does not teach or suggest performing the further step of determining what the cause of the defect was during the manufacturing process, and then tailoring the corrective action to overcome that particular

¹ The statistical and rules-/ knowledge-based models of the claimed invention are advantageous embodiments, but are not the only ones and therefore are not to be limiting of the claims.

manufacturing process problem. Absent a teaching or suggestion of these features, it is respectfully submitted that the Ichioka patent cannot render obvious claim 1 or any of its dependent claims.

For at least the foregoing reasons, it is respectfully submitted that the § 103(a) rejection of claim 1 and its dependent claims is improper and should be withdrawn. It is further submitted that claims 22 and 30 are allowable over Ichioka, as these claims respectively recite “identifying a manufacturing process problem which caused the defect based on said defect classification” and “a processor which . . . identifies a problem in a manufacturing process which caused the defect based on said defect classification.” None of these features are taught or suggested in Ichioka or the other cited references, whether taken alone or in combination.

Claim 9 depends from claim 1 and recites “adjusting said process to avoid the problem during manufacture of other circuits.” That is, for example, once the manufacturing problem that caused the defect has been identified, the process is then adjusted to avoid the problem. These features are not taught or suggested in any of cited references, whether taken alone or in combination.

Claim 28 recites “storing information linking the different defect types to manufacturing process problems, said identifying step including identifying said manufacturing process problem based on said linking information.” None of the cited references teach or suggest this linking information or any of the other features recited in claim 28.

Claim 29 recites “identifying an area within said manufacturing process where the classified defect occurred.” These features are not taught or suggested by any of the cited references, whether taken alone or in combination.

Claim 35 recites “a memory which stores information linking a plurality of defect classifications with a respective plurality of manufacturing process problems, said processor identifying the manufacturing process problem based on said linking information.” None of the cited references teach or suggest this linking information or any of the other features recited in claim 28.

Claim 36 recites “wherein the processor identifies an area within said manufacturing process where the classified defect occurred.” These features are not taught or suggested by any of the cited references, whether taken alone or in combination.

II. The § 103(a) Rejection based on an Ichioka-Suzuki Combination.

The Examiner rejected claims 2-8 for being obvious over the above-identified combination. Applicant traverses this rejection for the following reasons.

Claims 2-8 depend from claim 1. In order to render claims 2-8 obvious, the Suzuki patent must therefore teach or suggest the features of claim 1 missing from Ichioka. The Suzuki patent discloses a decision circuit that detects pixel faults based on the voltage stored in a capacitor. The Suzuki patent does not teach or suggest the step of “identifying a problem in a manufacturing process which caused the defect based on said defect classification.” Absent a teaching or suggestion of these features, it is respectfully submitted that a Ichioka-Suzuki combination cannot render claim 1 or claims 2-8 obvious. Withdrawal of the § 103(a) rejection is therefore respectfully requested.

III. New Claims.

Claims 37-48 have been added to the application.

Claim 37 recites that “the problem in the manufacturing process is identified by comparing the defect classification to statistical information which links a plurality of predefined defect classifications to a plurality of corresponding manufacturing process problems.” None of the cited references teach or suggest these features.

Claim 38 recites determining in what stage of the manufacturing process the defect occurred. None of the cited references teach or suggest these features.

Claim 39 recites that “the problem in the manufacturing process is automatically identified using a rules-based or knowledge-based system that associates the defect classification with one or more other defects that are likely to occur together.” None of the cited references teach or suggest these features.

Claim 40 recites “determining a technique for correcting the defect classification based on the identified manufacturing process problem.” In other words, the corrective action taken is specifically tailored to the manufacturing problem identified. This is evident, for example, from Table 1 in the specification. The corrective action can be taken to prevent the defect classification from occurring in future circuits, to remove the defect in the circuit under test, or both. None of the cited references teach or suggest these features.

Claims 41-48 recite features similar to claims 37-40 but depending from claims 22 and 30 respectively. Accordingly, it is submitted that these claims are also allowable.

Serial No. 10/646,688

Reconsideration and withdrawal of all the rejections and objections made by the Examiner is hereby respectfully requested.

In view of the foregoing amendments and remarks, it is respectfully submitted that the application is in condition for allowance. Favorable consideration and prompt allowance of the application is respectfully requested.

Should the Examiner believe that further amendments are necessary to place the application in condition for allowance, or if the Examiner believes that a personal interview would be advantageous in order to more expeditiously resolve any remaining issues, the Examiner is invited to contact Applicants' undersigned attorney at the telephone number listed below.

To the extent necessary, Applicants petition for an extension of time under 37 C.F.R. §1.136. Please charge any shortage in fees due in connection with this application, including extension of time fees, to Deposit Account No. 16-0607 and credit any excess fees to the same Deposit Account.

Respectfully submitted,



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